rence. The greatest heat of a summer's day does not occur when the sun is on the meridian, nor is the greatest heat of summer experienced in the middle latitudes of the Northern Hemisphere when the sun has reached the northern limit of its course.

If, therefore, the term "equinoctial storms" is to be preserved, and it undoubtedly will be, it may properly be employed to designate tropical storms, or hurricanes, cyclones, and typhoons, that occur in the Northern Hemisphere during the six or seven weeks that precede and follow the autumnal equinox. Many such storms may follow in rapid succession; each is *an* equinoctial storm. There is no one special storm to which the term "*the* equinoctial" should be applied.

SPECIAL CLOUD OBSERVATION.

An esteemed correspondent at Cunningham, Itasca County, Minn., Mr. David Rose, under date of December 8, 1906, states that at 11 a. m. of Friday, December 7, he "observed a clear rift of cloudless blue sky from the southern horizon thru the zenith to the northern horizon. On each side of this rift the clouds lookt like waves dashing against a rough beach." In reply to his query as to the cause and nature of this phenomenon the following letter has been sent. It would scarcely seem worth while to publish this reply were it not that so many persons are liable to make the mistake of assuming that some unknown mysterious electrical influence controls the formation of clouds, whereas the fact is cloud forms are produced by condensation of moisture under a myriad of complex conditions as to temperature, humidity, and wind, and it is these conditions that determine the nature of the cloud. If any electricity is developed in the formation of such a cloud it is a matter of very little consequence in comparison with the winds and the moisture, the barometric gradient, and the temperature gradient. Dynamic meteorology consists essentially in the study of the hydrodynamics and the thermodynamics of the atmosphere; the optical and electrical phenomena are matters of minor importance in relation to winds, storms, and weather, but they should be carefully studied by those who are expert in these matters.—EDITOR.

The weather map shows that on the morning of Friday, December 7, you were located on or near a narrow belt separating a region of cold westerly winds, which lay to the east of you, from a region of warmer southeast winds, which lay to the west of you. This latter region had disappeared by the morning of Saturday, December 8. I therefore infer that the clear, blue sky that you saw extending in a narrow band northward and southward was a region in which air was descending slowly, so that it might flow, some to the east and some to the west, toward these two regions of westerly and easterly winds, about as shown in this little sketch. In this case you would not be likely to feel any very

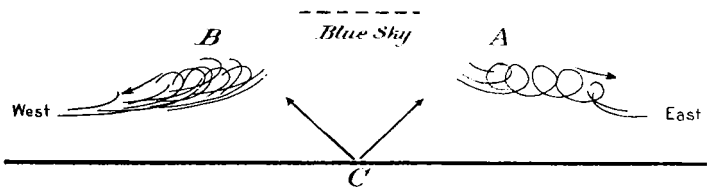

FIG. 1.—Vertical section thru clouds and clear rift.

strong winds, as the descending air would flow to the east or west before it reached the ground. However, the air rarely flows in straight lines, and these winds would undoubtedly roll over and over, forming belts of clouds at *A* and *B*, while the space between would be clear, blue sky, as seen from your point of view. The clouds that you saw are the so-called cumulus clouds, and belong to the lower atmosphere; they are not likely to have been more than a mile high at the top, but even if they were two miles, they would still be called lower clouds. This diagram, therefore, shows you that if the height of *A* and *B* above the ground was only two miles, and you were midway between them at *C*, then by walking a few miles east or west you would have gotten a very different view of the whole phenomenon, and persons who live five miles away would have seen nothing of it whatever. It is, therefore, not surprising that we have no records of the same phenomenon observed at other points of the country.

As the winds at *A* and *B* were fairly well balanced against each other, this clear intervening space remained nearly stationary; but eventually one must overcome the other, and, as you say that "it vanished gradually from the north", I infer that the blue sky was covered by clouds coming from that direction, where, as the map shows, we had high pressure and cold northerly winds. The whole country seems to have been covered by clouds next day.

LENTICULAR-CUMULUS CLOUDS IN COLORADO.

By J. B. WILLSEA. Dated Fruita, Mesa County, Colo., July 18, 1907.

The article on page 456 of the MONTHLY WEATHER REVIEW, for October, 1906, on lenticular-cumulus clouds has just come to my notice.

We have here an occasional cloud which may possibly be classed as lenticular-cumulus. It is of a rather dark color and in form resembles a saucer, or a number of saucers, placed one within the other, and then the pile turned upside down—the upper surface being convex, with a sharply defined outline—the lower surface not so pronouncedly convex and with a softer outline.

It usually accompanies or precedes a brisk wind and may appear singly or in numbers as high as five or six, altho two or three is ordinarily the limit.

Fig. 1 is a rough draft of them.

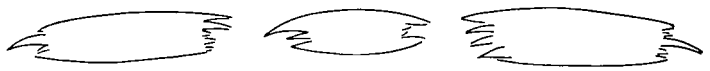

FIG. 1.—Lenticular-cumulus clouds.

They are always horizontal and sometimes move with considerable rapidity.

The pronounced cap shown in the third of Mr. Endicott's photographs (fig. 3, page 458, REVIEW for October, 1906), has not been observed by me.

I am convinced that those observed here are alto-cumulus clouds, seen edgewise, for the following reasons:

1. Because they have appeared in company with well-defined groups of alto-cumulus clouds, apparently at the same elevation, of the same shade, and apart from all other clouds.

2. Because these clouds are never seen near the zenith—always at a distance.

3. Because an alto-cumulus cloud, composed of one or more patches, reaching in a line toward the observer, must of necessity (when at a distance, so as to be seen edgewise), assume this form.

The clouds below the principal ones in Mr. Endicott's photographs show a suggestion of this formation, but the lower clouds are not in a direct line toward the observer, but bear away to the left. It was a puzzle to me for a long time why these clouds were not seen near the zenith.

Allow me to ask why the points at the sides of the clouds always curve slightly downward, never upward.

As to another matter, that of precipitation following a solar halo, I will say that in nearly five years my records show 16 halos, and that considering the following days 6 halos were followed by precipitation while 10 halos were not; but this is a very dry climate where we get only 8 or 10 inches of precipitation per annum.

DISTINGUISHED COOPERATIVE OBSERVERS.

The Weather Bureau has maintained many stations for thirty-seven years past, but, as is well known, its observers are employed specifically for such work, have a great variety of duties, and are often moved from one station to another, while the exact locations of the offices and instruments are also frequently changed, so that the comparability of methods and exposures is impaired.

Very different conditions pertain with our faithful voluntary cooperative observers. In these cases there are but few changes in the instruments or the locations or the men at any

station, and the comparability of the records during a long period of time is assured by the spirit of conservatism that must animate a man who voluntarily undertakes a meteorological record and carries it along continuously for many years. The following list includes, we believe, all the cases known to the Records Division in which the same person or family has maintained a record at the same place for thirty years or more *and is still reporting.* Also a few observers are included who are no longer maintaining observations. If any observers are accidentally omitted from this list we hope we shall hear from them, and we shall be glad to publish their names.

A still longer list could be made of observers who have closed their work and past away. We desire short biographical sketches of each person who has thus nobly devoted himself to the recording of the weather.

In the early history of the respective stations the record books do not always clearly show the names to whom the observations should be credited, and it is hoped that any errors discovered in the names will be reported in order that proper note may be made in the books.

Station.	Length of record.	Observer.
Canton, Conn	45 years	G. J. Case.
Riley, Ill	47 years	John West James.
Vevay, Ind	43 years	Miss Frederica Boerner.
Clinton, Iowa	37 years	Luke Roberts.
Fort Madison, Iowa	59 years	Doctor McCready. Miss Lucy A. McCready.
Logan, Iowa	38 years	Jacob Stern. Mrs. M. B. Stern. Glenn H. Stern.
Lawrence, Kans	39 years	Prof. F. H. Snow.
Cornish, Me	51 years	Silas West. T. H. West.
Fallston, Md	37 years	G. G. Curtis. J. H. Curtis.
Amherst, Mass	73 years	Prof. E. S. Snell. Miss S. C. Snell.
Fitchburg, Mass	43 years	Dr. Jabez Fisher.
Fall River, Mass	40 years	C. V. S. Remington.
Westboro, Mass	32 years	G. S. Newcomb.
Lansing, Mich	45 years	Prof. R. C. Kedzie. Dr. H. B. Baker.
Thornville, Mich	30 years	J. S. Caulkins, M. D.
Oregon, Mo	52 years	Wm. Kaucher. G. C. Kaucher. Thos. Curry.
Genoa, Nebr	31 years	Geo. S. Truman.
Concord, N. H	51 years[1]	J. H. Foster. W. L. Foster. W. W. Flint.
Moorestown, N. J	42 years	T. J. Beans. John C. Beans.
South Orange, N. J	37 years	Wm. J. Chandler.
Trenton, N. J	41 years	E. R. Cook.
Cooperstown, N. Y	52 years	G. Pomeroy Keese.
Palermo, N. Y	54 years	E. B. Bartlett.
Cleveland, Ohio	51 years[2]	Gustavus A. Hyde.
Jacksonburg, Ohio	40 years	Dr. J. B. Owsley.
North Lewisburg, Ohio	56 years	H. D. Gowey.
Portsmouth, Ohio	78 years	Dr. G. S. B. Hempstead. Dr. D. B. Cotton. Dr. H. A. Schirrmann.
Wauseon, Ohio	37 years	Thomas Mikesell.
The Dalles, Oreg	32 years	S. L. Brooks.
West Chester, Pa	52 years	J. C. Green, D. D. S.
Manitowoc, Wis	57 years	Jacob A. Lups. Miss Johanna Lups.

CORRIGENDA.

MONTHLY WEATHER REVIEW for April, 1907, Vol. XXXV, No. 4, page 173, Table 1, for 1903, line IX, column *Q*, for "1.011" read "1.041"; line X, column *f*, for "7.4" read "7.1"; year 1904, line Mean, column *f*, for "6.9" read "5.9". Page 175, column 2, third line from end of article, for "Table 3" read "Table 4".

[1] Established as a regular Weather Bureau station in 1902.
[2] Discontinued observations on December 31, 1905.

THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, Assistant Chief, Division of Meteorological Records.

PRESSURE.

The distribution of mean atmospheric pressure for June, 1907, over the United States and Canada is graphically shown on Chart VI, and the average values and departures from the normal are shown for each station in Tables I and V.

The balance of pressure toward the north, noted in the MONTHLY WEATHER REVIEW for May as the chief factor contributing to the unseasonable weather that prevailed east of the Rocky Mountains during that and the preceding month, continued well into June over the Great Lakes, the upper Ohio Valley, New England, and the Middle Atlantic States.

Early in the month the summer type of low pressure became established over western Texas and adjacent districts, and normal weather conditions prevailed over the Gulf States and the territory between the Mississippi River and the Rocky Mountains from Kansas southward.

Over the region north of the Great Lakes, and over New England, pressure continued comparatively high till near the middle of the month, and the absence of the usual summer type of high pressure over the South Atlantic States during that period brought the greater portion of the districts east of the Mississippi Valley under the influence of northerly and easterly winds; and cloudy, cold weather, unprecedented for June, resulted. During the latter part of the month comparatively high pressure became fairly well established over the south Atlantic coast districts, the remnant of the great area of high pressure that appears to have prevailed over the region north of the Great Lakes during the preceding months drifted eastward into the North Atlantic, and southerly winds and seasonable weather were maintained over all districts east of the Rocky Mountains until the last few days of the month.

While the establishment of the normal pressure distribution east of the Rocky Mountains was accomplished about the middle of the month, west of the mountains, especially over the middle and southern Plateau districts, high pressure was dominant until after the 20th, and seasonable weather was delayed accordingly.

The mean pressure for the month was deficient in all districts of the United States and Canada, except over the southern portions of the Plateau and Pacific coast districts, and the extreme eastern portions of the Maritime Provinces of Canada.

Over the Canadian northwest territories, the eastern slope of the Rocky Mountains, the Ohio Valley, and the Middle Atlantic States the pressure averaged .05 inch or more below the normal.

Marked deviations from the normal occurred in the change in pressure from May to June. Over the Gulf States and the Ohio and lower Mississippi valleys, where the pressure normally increases from May to June, the reverse occurred and pressure averaged decidedly lower in June than in the preceding month. Over the middle and southern Plateau districts, where pressure normally decreases as summer approaches, the average for the month was decidedly higher than in May.

Marked variations also occurred over the districts between the Great Lakes and the Rockies from Nebraska and Iowa northward into Canada, where the changes from May to June ranged from —.10 to —.25 inch.

TEMPERATURE.

The abnormal displacement of the more or less permanent areas of high and low pressure, and the corresponding deflection of the surface winds from their normal courses, that had